FORM PTO-1390
(REV. 9-2001)

U S DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE

# TRANSMITTAL LETTER TO THE UNITED STATES DESIGNATED/ELECTED OFFICE (DO/EO/US) CONCERNING A FILING UNDER 35 U.S.C. 371

**ATTORNEY 'S DOCKET NUMBER**
PTT-128(402571US)

**U.S. APPLICATION NO. (If known, see 37 CFR 1.5**
10/019344

| INTERNATIONAL APPLICATION NO. | INTERNATIONAL FILING DATE | PRIORITY DATE CLAIMED |
|---|---|---|
| PCT/EP00/04627 | 19 May 2000 | 13 July 1999 |

**TITLE OF INVENTION** A METHOD FOR PROTECTING A PORTABLE CARD
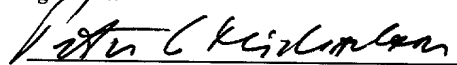
**APPLICANT(S) FOR DO/EO/US** MULLER, Frank; ROELOFSEN, Gerrit

Applicant herewith submits to the United States Designated/Elected Office (DO/EO/US) the following items and other information:

1. [x] This is a **FIRST** submission of items concerning a filing under 35 U.S.C. 371.

2. [ ] This is a **SECOND** or **SUBSEQUENT** submission of items concerning a filing under 35 U.S.C. 371.

3. [x] This is an express request to begin national examination procedures (35 U.S.C. 371(f)). The submission must include items (5), (6), (9) and (21) indicated below.

4. [ ] The US has been elected by the expiration of 19 months from the priority date (Article 31).

5. [ ] A copy of the International Application as filed (35 U.S.C. 371(c)(2))
   a. [ ] is attached hereto (required only if not communicated by the International Bureau).
   b. [ ] has been communicated by the International Bureau.
   c. [ ] is not required, as the application was filed in the United States Receiving Office (RO/US).

6. [ ] An English language translation of the International Application as filed (35 U.S.C. 371(c)(2)).
   a. [ ] is attached hereto.
   b. [ ] has been previously submitted under 35 U.S.C. 154(d)(4).

7. [ ] Amendments to the claims of the International Aplication under PCT Article 19 (35 U.S.C. 371(c)(3))
   a. [ ] are attached hereto (required only if not communicated by the International Bureau).
   b. [ ] have been communicated by the International Bureau.
   c. [ ] have not been made; however, the time limit for making such amendments has NOT expired.
   d. [ ] have not been made and will not be made.

8. [ ] An English language translation of the amendments to the claims under PCT Article 19 (35 U.S.C. 371 (c)(3)).

9. [x] An oath or declaration of the inventor(s) (35 U.S.C. 371(c)(4)). (4 pps.)

10. [ ] An English lanugage translation of the annexes of the International Preliminary Examination Report under PCT Article 36 (35 U.S.C. 371(c)(5)).

### Items 11 to 20 below concern document(s) or information included:

11. [x] An Information Disclosure Statement under 37 CFR 1.97 and 1.98. (with Form PTO/SB08A-B, copy of International Search Report and four (4) references including English abstract for Reference AB)

12. [x] An assignment document for recording. A separate cover sheet in compliance with 37 CFR 3.28 and 3.31 is included.

13. [x] A FIRST preliminary amendment. (2 pps.)

14. [ ] A SECOND or SUBSEQUENT preliminary amendment.

15. [ ] A substitute specification.

16. [ ] A change of power of attorney and/or address letter.

17. [ ] A computer-readable form of the sequence listing in accordance with PCT Rule 13ter.2 and 35 U.S.C. 1.821 - 1.825.

18. [ ] A second copy of the published international application under 35 U.S.C. 154(d)(4).

19. [ ] A second copy of the English language translation of the international application under 35 U.S.C. 154(d)(4).

20. [x] Other items or information: postcard, Cover Letter (1 pp.), Application Data Sheet (2 pps.), copy of International Publication No. WO 01/05091 with one (1) drawing sheet (FIGs. 1-3), copy of PCT Request (6 pps.), copy of Notification of International Application Number and International Filing Date (1 pp.), copy of PCT Demand (5 pps.), copy of Notification of Receipt of Demand (1 pp.), copy of Notification of Transmittal of the International Preliminary Examination Report with a copy of the International Preliminary Examination Report and one (1) amended sheet of claims (8 pps.), Submission of Priority Document with certified copy of NL Serial No. 1012581 (with English translation).

| U.S. APPLICATION NO. (if known, see 37 CFR 1.5) 10/019344 | INTERNATIONAL APPLICATION NO PCT/EP00/04627 | ATTORNEY'S DOCKET NUMBER PTT-128(402571US) |
|---|---|---|

**21** [x] The following fees are submitted:

| | CALCULATIONS | PTO USE ONLY |
|---|---|---|
| **BASIC NATIONAL FEE (37 CFR 1.492 (a) (1) - (5)):** Neither international preliminary examination fee (37 CFR 1.482) nor international search fee (37 CFR 1.445(a)(2)) paid to USPTO and International Search Report not prepared by the EPO or JPO . . . . . . . . . . **$1040.00** | | |
| International preliminary examination fee (37 CFR 1.482) not paid to USPTO but International Search Report prepared by the EPO or JPO . . . . . . . . **$890.00** | | |
| International preliminary examination fee (37 CFR 1.482) not paid to USPTO but international search fee (37 CFR 1.445(a)(2)) paid to USPTO . . . . . . . . . . **$740.00** | | |
| International preliminary examination fee (37 CFR 1.482) paid to USPTO but all claims did not satisfy provisions of PCT Article 33(1)-(4) . . . . . . . . **$710.00** | | |
| International preliminary examination fee (37 CFR 1.482) paid to USPTO and all claims satisfied provisions of PCT Article 33(1)-(4) . . . . . . . . . . . **$100.00** | | |
| ENTER APPROPRIATE BASIC FEE AMOUNT = | $ 890.00 | |
| Surcharge of **$130.00** for furnishing the oath or declaration later than [ ] 20 [ ] 30 months from the earliest claimed priority date (37 CFR 1.492(e)). | $ 00.00 | |

| CLAIMS | NUMBER FILED | NUMBER EXTRA | RATE | $ | |
|---|---|---|---|---|---|
| Total claims | 7  - 20 = | 0 | x **$18.00** | $ 00.00 | |
| Independent claims | 1  - 3 = | 0 | x **$84.00** | $ 00.00 | |
| MULTIPLE DEPENDENT CLAIM(S) (if applicable) | | | + **$280.00** | $ 00.00 | |
| **TOTAL OF ABOVE CALCULATIONS =** | | | | $ 890.00 | |
| [ ] Applicant claims small entity status. See 37 CFR 1.27. The fees indicated above are reduced by 1/2.                                                 + | | | | $ 00.00 | |
| **SUBTOTAL =** | | | | $ 890.00 | |
| Processing fee of **$130.00** for furnishing the English translation later than [ ] 20 [ ] 30 months from the earliest claimed priority date (37 CFR 1.492(f)). | | | | $ 00.00 | |
| **TOTAL NATIONAL FEE =** | | | | $ 890.00 | |
| Fee for recording the enclosed assignment (37 CFR 1.21(h)). The assignment must be accompanied by an appropriate cover sheet (37 CFR 3.28, 3.31). **$40.00** per property    + | | | | $ 40.00 | |
| **TOTAL FEES ENCLOSED =** | | | | $ 930.00 | |
| | | | Amount to be refunded: | $ | |
| | | | charged: | $ | |

a. [x] A check in the amount of $ 930.00 to cover the above fees is enclosed.

b. [ ] Please charge my Deposit Account No. 13-3083 in the amount of $ _____ to cover the above fees. A duplicate copy of this sheet is enclosed.

c. [x] The Commissioner is hereby authorized to charge any additional fees which may be required, or credit any overpayment to Deposit Account No. 13-3083 . A duplicate copy of this sheet is enclosed.

d. [ ] Fees are to be charged to a credit card. **WARNING:** Information on this form may become public. **Credit card information should not be included on this form.** Provide credit card information and authorization on PTO-2038.

**NOTE: Where an appropriate time limit under 37 CFR 1.494 or 1.495 has not been met, a petition to revive (37 CFR 1.137 (a) or (b)) must be filed and granted to restore the application to pending status.**

SEND ALL CORRESPONDENCE TO:

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30,090
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REGISTRATION NUMBER

Customer No. 007265

FORM PTO-1390 (REV 9-2001) page 2 of 2

(PTT128TRANS/79:ca)

IN THE UNITED STATES
RECEIVING OFFICE (RO/US)

**PATENT APPLICATION**

Applicants: **MULLER, Frank; ROELOFSEN, Gerrit**

Case: **PTT-128(402571US)**

International Application No.: **PCT/EP00/04627**

International Filing Date: **19 May 2000**

Priority Date Claimed: **13 July 1999**

Title: **A METHOD FOR PROTECTING A PORTABLE CARD**


COMMISSIONER FOR PATENTS
**BOX PCT**
Washington, D. C.   20231

S I R:

**PRELIMINARY AMENDMENT**

        Please amend the above-identified patent
application which is simultaneously filed herewith, as
follows:


IN THE CLAIMS-

Delete claims 1-7 and substitute therefore the following
claims:


1    --8.  A method for protecting a portable card provided with
2    at least a cryptographic algorithm for enciphering data
3    and/or authenticating the card against deriving the secret
4    key used from statistical analysis of its information
5    leaking away to the outside world in the event of

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6     cryptographic operations, such as power-consumption data,

7     electromagnetic radiation and the like, the card being

8     provided with at least a shift register having a linear and

9     a non-linear feedback function for creating cryptographic

10    algorithms, the method comprising loading data to be

11    processed and a secret key in the shift register of the

12    card, characterised in that an algorithm, comprising an

13    appropriately chosen succession of applications of linear

14    and non-linear feedback functions, is applied to the card in

15    such a manner that the collection of values of recorded

16    leak-information signals is resistant to deriving the secret

17    key by way of statistical analysis of said values.


1     9.   The method according to claim 8, characterized in that,

2     after the key has been loaded into the shift register, the

3     shift register, during a specific period, clocks on several

4     times, at least using the linear-feedback function, and that

5     subsequently the data is loaded using only the

6     linear-feedback function and the shift register subsequently

7     clocks on.


1     10.  The method according to claim 9, characterized in that

2     during the first instance of clocking on the shift register

3     is clocked on for so long that the content of all elements

4     of the shift register largely depend on the bits of the key.


1     11.  The method according to claim 8, characterized in that,

2     after the key has been loaded into the shift register, the

3     shift register, during a specific period, clocks on several

4     times, and in that clocking on the shift register takes

5     place with an active linear and an active non-linear

6     feedback function of the shift register, no data being

7   loaded into the shift register, however, during, or prior

8   to, the clocking-on period or prior to loading the key.


1   12.   The method according to claim 8, characterized in that

2   the input of data into the shift register after loading the

3   key into the shift register is disconnected from the shift

4   register and is reinstated after the aforementioned specific

5   period.


1   13.   The method according to claim 8, characterized in that

2   the key is only loaded into the shift register in the event

3   of a fixed content of the shift register.
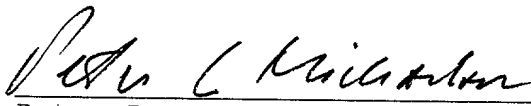

1   14.   The method according to claim 8, characterized in that,

2   if the key is not loaded with a fixed content of the shift

3   register, the key is loaded into the shift register using

4   only the linear feedback function, whereafter clocking on

5   takes place. --.


## REMARKS


      The foregoing amendment is made to conform the claims in the application to that amended in the International Preliminary Examination Report, to delete multiple dependent claims and correct minor typographical errors.

      Respectfully submitted,

20 December 2001

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-3-

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## ***EXPRESS MAIL CERTIFICATION***

"Express Mail" mailing label number: **EL632364785US**
Date of deposit: **21 December 2001**

I hereby certify that this paper or fee is being deposited with the United States Postal Service "Express Mail Post Office to Addressee" service under 37 CFR 1.10 on the date indicated above and is addressed to the Commissioner for Patents, **Box PCT**, Washington, D.C. 20231.

_____
Signature of person making certification

Peter L. MICHAELSON
_____
Name of person making certification

(PTT128PREAMEND/79:ca)

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## A method for protecting a portable card.

The invention relates to a method for protecting a portable
card, provided with at least a crypto algorithm for enciphering data
and/or authenticating the card, against deriving the secret key used
from statistical analysis of its information leaking away to the
outside world in the event of cryptographic operations, such as power
consumption data, electromagnetic radiation and the like, the card
being provided with at least a shift register having a linear and a
non-linear feedback function for creating cryptographic algorithms,
the method comprising loading data to be processed and a secret key
in the shift register of the card.

Using a secret key to process input information and/or to
produce output information is generally known in the event of
cryptographic devices.  Using feedback shift registers is also
generally known for creating cryptographic algorithms.

In this connection, data to be consecutively processed and a
secret key are loaded into one or more shift registers.  Here, the
sequence of loading data and the key is random.

Subsequently, the output of the shift register and possibly the
the shift-register contents are applied, using linear and/or non-
linear-feedback, to determine the output of the entire algorithm.
The input of the shift register then, apart from the data and the
key, also consists of a linear and a non-linear combination of the
shift-register contents.

Such shift registers are generally applied in the event of
portable cards, such as chip cards, calling cards, smart-card
products and the like.

Since the secret key is not known to unauthorised third parties,
it is basically impossible to derive either the input or the key from
the output of the algorithm.

Now it has become apparent, however, that for chip cards and the
like it is possible, in the event of computations, to derive the
secret key used from a statistical analysis of the power consumption
of the card.  Such methods are known as "Differential Power Analysis"
(= DPA) and are described in the Internet publication DPA Technical
Information: "Introduction to Differential Power Analysis and Related
Attacks" by P. Kocher et al., Cryptography Research, San Francisco,
1998.

Said methods are based on the fact that, in practice, with cryptographic operations, information is leaking away to the outside world in the form of power-consumption data, electromagnetic radiation and the like.

Thus, logical microprocessor units show regular transistor-switching patterns which externally (i.e., outside the microprocessor) noticeably produce electrical behaviour.

In this manner, it is possible to identify macro characteristics, such as microprocessor activity, by recording the power consumption and deriving information on the secret key used by way of statistical analysis of the data thus obtained.

The invention now overcomes said drawback and provides a portable card which is resistant to such analyses and therefore provides a card which is safe to use.

The method according to the invention is characterised in that an algorithm is applied to the card which is constructed in such a manner that the collection of values of recorded leak-information signals is resistant to deriving the secret key by way of statistical analysis of said values. Advantageously, after loading the key into the shift register, the shift register is subsequently clocked on, during a specific period of time, several times, at least making use of the linear feedback function.

A suitable alternative according to the invention is loading only the key into the shift register in the event of a fixed content of the shift register.

In a first advantageous embodiment of the invention, there is first loaded the key, subsequently clocking on is performed, after which the data is loaded.

In another advantageous embodiment of the invention, the key is first loaded, subsequently the data is loaded into the shift register, making exclusive use of the linear feedback function and subsequently the clocking on is performed.

In yet another advantageous embodiment of the invention, the data is first loaded, subsequently the key is loaded, making exclusive use of the linear feedback function, whereafter clocking on is performed.

The invention will now be further explained with reference to the drawing and the description by way of non-limiting example.

FIG. 1 schematically shows a typical shift register as applied with a portable card, such as a chip card and the like.

FIG. 2 schematically shows an advantageous solution according to the invention, and

FIG. 3 schematically shows another advantageous solution according to the invention.

Referring now to FIG. 1, there is shown a feedback shift register 1, which is applied in any way suitable for that purpose to a portable card, not shown for simplicity's sake, such as a chip card, calling card and the like, having an input 2 and an output 3.

The feedback shift register 1 comprises a shift register 1a, as well as a feedback function, which in this case consists of a linear function 1b and a non-linear function 1c having an output 3a. Such a feedback shift register, due to its relatively low costs, is eligible for being applied to, e.g., calling cards and the like. The non-linear function may see to it that each bit depends on each number of key bits.

Shift registers are generally known and their operation will therefore not be described in detail. The shift register 1a consists of a series of bits. The length of a shift register is expressed in bits; in the event of a length of n bits, it is called an n-bit shift register.

Each time a bit is required, all bits in the shift register are shifted 1 bit to the right. The new left bit is calculated as a function of the bits remaining in the register and the input.

The output of the shift register is 1 bit, often the least significant bit. The period of a shift register is the length of the output series before repetition starts.

Data is loaded by way of the input 2; the key is loaded, and results are produced by way of the output 3 or, if so desired, 3a. In a similar situation, however, there may be carried out an attack on the secret key used by way of DPA, based on power variations of the system in the event of computations via statistical analysis of "leak data" and error-correcting techniques.

In this connection, it should be noted that, from a security viewpoint, it is desirable to load the key and the data non-linearly into the shift register. It has become apparent, however, that in the event of calculations, non-linearly loading the key and the data into the shift register increases the chance of deriving the secret key used through statistical analysis of the power consumption.

In FIG. 2 and FIG. 3, the same reference numerals as used in FIG. 1 refer to the same components.

FIG. 2 now shows an advantageous embodiment of the invention, the key first being loaded into the shift register, subsequently data being loaded, at least initially, exclusively using the linear-feedback function, and then the clocking on (e.g., 100 times or over) of the shift register taking place. During loading the data and, if so desired, the subsequent clocking on, the non-linear function of the shift register is deactivated until the shift register has been sufficiently clocked on. Then, the non-linear function is switched on once again.

In doing so, the linear-feedback function 1b continues to be active.

Deactivating and activating, as the case may be, the non-linear function 1c may take place in any way suitable for that purpose, e.g., using switches.

The shift register 1a is advantageously clocked on so many times that the content of all elements of the shift register depends on a large portion of the bits of the key.

In another advantageous embodiment, after loading the key there is first clocked on until the content of all elements of the shift register depends on a large portion of the bits of the key. Only after said clocking on, the data in the shift register 1a is permitted to be loaded and non-linear operations on the content of the shift register are also permitted to be effected.

Clocking on takes place in any way known to those skilled in the art and will therefore not be explained in further detail.

For completeness' sake, it should be noted that DPA is only capable of being carried out if there takes place a non-linear operation of the data with the key. Since, in addition, the effort required for DPA rises exponentially with the number of key bits on which the bits in the shift register depend, it is achieved in this manner that, in the event of sufficient interim clocking on of the shift register 1a, applying DPA does not result in short-term success.

In FIG. 3, there is shown an advantageous variant of the invention, the key having been loaded with a fixed content of the shift register (which may also consist purely of zeros) and clocking on the shift register taking place with an active linear and an active non-linear feedback function, but without data being loaded into the shift register during the clocking-on period. In doing so, the input of data into the shift register after loading the key is disconnected from the shift register and is reinstated again after a

specific clocking-on period. Due to the fixed content of the shift register, it is not permitted to apply any modifications and an unauthorised third party shall not be capable of determining a collection of different values of leak data, such as power consumption, and subject it to statistical analysis in order to retrieve the key.

In this solution according to the invention, the key may therefore be loaded non-linearly, and deactivating the non-linear feedback function will not be required.

In another advantageous embodiment of the invention, in the event that the key, after data has been loaded into the shift register, is not loaded with the fixed content of the shift register, the key is loaded into the shift register using only the linear-feedback function, whereafter subsequent clocking on is permitted to take place.
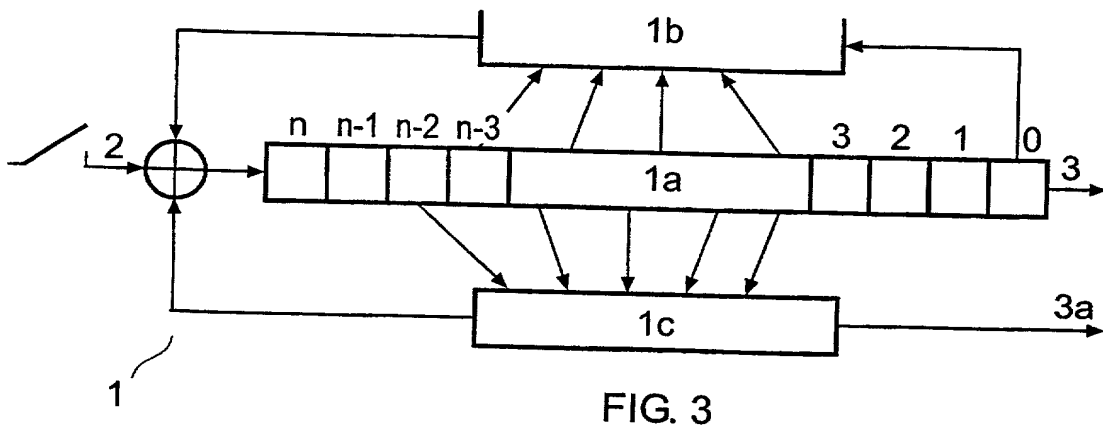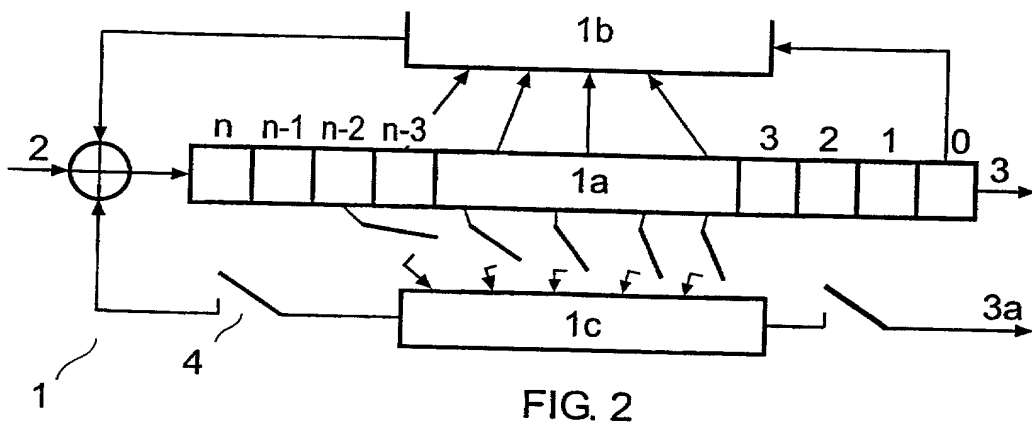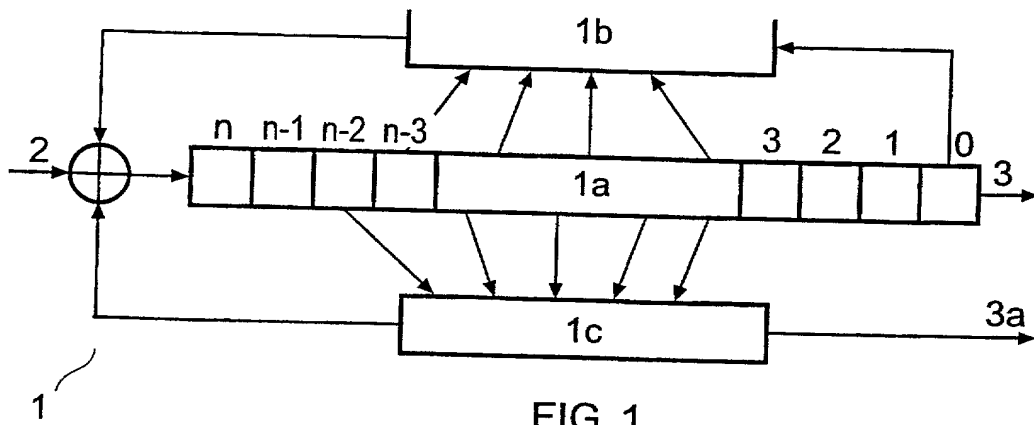
After the aforementioned description, various modifications of the method according to the invention will become apparent to those skilled in the art.

Such modifications shall be deemed to fall within the scope of the invention.

AMENDED SET OF CLAIMS

1.        A method for protecting a portable card provided with at
least a cryptographic algorithm for enciphering data and/or
authenticating the card against deriving the secret key used from
statistical analysis of its information leaking away to the outside
world in the event of cryptographic operations, such as power-
consumption data, electromagnetic radiation and the like, the card
being provided with at least a shift register having a linear and a
non-linear feedback function for creating cryptographic algorithms,
the method comprising loading data to be processed and a secret key
in the shift register of the card, characterised in that an
algorithm, comprising an appropriately chosen succession of
applications of linear and non-linear feedback functions, is applied
to the card in such a manner that the collection of values of
recorded leak-information signals is resistant to deriving the
secret key by way of statistical analysis of said values.

2.        The method according to claim 1, characterised in that,
after the key has been loaded into the shift register, the shift
register, during a specific period, clocks on several times, at
least using the linear-feedback function, and that subsequently the
data is loaded using only the linear-feedback function and the shift
register subsequently clocks on.

3.        The method according to claim 2, characterised in that
during the first instance of clocking on the shift register is
clocked on for so long that the content of all elements of the shift
register largely depend on the bits of the key.

4.        The method according to claim 1, characterised in that,
after the key has been loaded into the shift register, the shift
register, during a specific period, clocks on several times, and in
that clocking on the shift register takes place with an active
linear and an active non-linear feedback function of the shift
register, no data being loaded into the shift register, however,
during, or prior to, the clocking-on period or prior to loading the
key.

5.        The method according to any of the preceding claims,
characterised in that the input of data into the shift register
after loading the key into the shift register is disconnected from
the shift register and is reinstated after the aforementioned
specific period.

6.        The method according to any of the preceding claims,
characterised in that the key is only loaded into the shift register
in the event of a fixed content of the shift register.

7.        The method according to any of the preceding claims,
characterised in that, if the key is not loaded with a fixed content
of the shift register, the key is loaded into the shift register
using only the linear feedback function, whereafter clocking on
takes place.

FIG. 1

FIG. 2

FIG. 3

**DECLARATION AND
POWER OF ATTORNEY**
(Utility Patent Application)

As a below named inventor, I hereby declare:

My residence, post office address and citizenship are as stated below next to my name,

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below), of the subject matter which is claimed and for which a patent is sought on the invention entitled:

"A method for protecting a portable card."

 the specification of which:

___ is attached hereto
___ was filed on        as Application Serial
 with amendment(s) filed _____
__X__ was filed as PCT international application: PCT/EP00/04627
 and was amended under PCT Article 19 14 September 2001

hereby state that I have reviewed and understand the contents of the above-identified specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose information which is material to the patentability of this application in accordance with Title 37, Code of Federal Regulations section 1.56.

I hereby claim foreign priority benefits under Section 119 of Title 35, United States Code for the above-identified US patent application based on the patent or inventor's certificate identified below and having a filing date before that of the US patent application for which priority is claimed:

|  |  |  | Priority Claimed |
| --- | --- | --- | --- |
| Application No | Country | Filing Date | under 35 USC 119 |
| 1012581 | NL | July 13, 1999 | YES |

I hereby claim the benefit under Section 120 and/or Section 119(e) of Title 35 of the United States Code of any United States application(s) listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States application in the manner provided by Section 112 of Title 35 of the United States Code, I acknowledge the duty to disclose material information, as defined in Section 1.56 of Title 37 of the Code of Federal Regulations, which occurred between the filing date of the prior application and the national or PCT international filing date of this application:

|  |  |  | Status |  |
| --- | --- | --- | --- | --- |
| Application Serial No. | Filing Date | Patented | Pending | Abandoned |

Power of attorney:

Second inventor:

2-0 Full name:      <u>ROELOFSEN</u>    <u>Gerrit</u>
                              last            first            middle

Residence address:    <u>Rijndijk 60 A</u>
                              Street

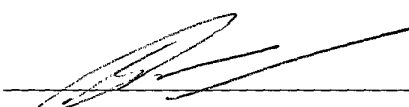                              <u>2331 AH LEIDEN</u>   *NLX*     <u>The Netherlands</u>
                              city, state, zip code         country

Post Office address: <u>P.O. Box 95321</u>
                              post office & box number

                              <u>2509 CH The Hague</u>       <u>The Netherlands</u>
                              city, state, zip code         country

Citizenship: <u>The Netherlands</u>
              Country

Signature: _____

Date: _____ 10 - 12 - 2001_____

-4-

As a named inventor, I hereby appoint:

Peter L. Michaelson (Reg. No. 30,090)
Robert M. Wallace (Reg. No. 29,119)
Jeremiah G. Murray (Reg. No. 20,533)
John T. Peoples (Reg. No. 28,250)
Ronald L. Drumheller (Reg. No. 25,674)
Edward M. Fink (Reg. No. 19,640)
Christopher Balzan (Reg. No. 40,901)
Eric Agaard (Reg. No. 40,478)
Janet M. Skafar (Reg. No. 41,315)
Arthur L. Liberman (Reg.No. 22,698)

as my attorneys to prosecute this application and to transact all business in the United States Patent and Trademark Office in connection therewith.

Direct all correspondence to Customer Number 007265 at the following address:

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Red Bank, New Jersey 07701.

Direct all telephone calls to: (732) 530-6671.


I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

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First inventor:

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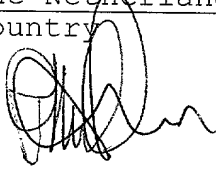                     Street

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              country

Signature: _____

Date: 10 – 12 , 2001

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